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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,261	05/25/2006	Masahiro Higashiguchi	R2184.0499/P499	3236
24998 7590 10/22/2007 DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403			EXAMINER PRASAD, CHANDRIKA	
			ART UNIT 2839	PAPER NUMBER
			MAIL DATE 10/22/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/580,261

Applicant(s)

HIGASHIGUCHI ET AL.

Examiner

Chandrika Prasad

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to amendments

1. The reply filed 9/27/07 consists of amendments to claims 1, 11, 17-19, 22, cancellation of claim 3 and remarks related to rejection of claims. The claims are not allowable as described below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites a printed circuit substrate comprisinga printed circuit board and then it recites the printed circuit board comprising the printed circuit substrate, which is confusing and improper.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 and 4-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5014162).

Clark (Figures 1-10) shows an electronic apparatus having a printed circuit assembly having a printed circuit board with a base substrate 10, a plurality of external interconnect terminals comprising a plurality of first lands 12 formed on a front surface of the base substrate, a plurality of second lands 19 formed on a rear surface of the substrate, a plurality of through-holes 13 formed in the base substrate and penetrating through the lands and a plurality of metal plates 15 soldered to the lands via a plurality of solder layers 30 and the plurality of through-holes through the base substrate and the lands filled with the solder 31. Clark shows a plurality of solder resist layer 17, 18 covering a peripheral edge of the lands as well as offset from the edge and making a pattern extending outside the land and dividing an area of the land. The resist layer also covers an interconnect pattern on the base substrate. Metal plate has an area larger than that of the land (excluding the through-hole) and covers the said land. An electrical component or a device 14 is mounted on the printed circuit board through the metal plate terminals 15.

But Clark does not show a plurality of through-holes in each land and solder layer. Such a feature is common knowledge, well known and widely used. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to provide a plurality of through-holes in each land and solder layer because this would provide a higher capacity and uniform soldering and this would require a mere duplication of essential parts, which involve only routine skill in the art. *St. Regis Co. vs. Bemis co.*, 193 USPQ 8.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5014162).

Clark discloses all the features of these claims except the terminals made of nickel or nickel alloy. The use of nickel or its alloy is well known and widely used in the art of electrical connectors. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to make the terminals of nickel or nickel alloy because such a material is readily available, well known and widely used and, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5014162).

Clark discloses all the features of these claims except the electronic device being a battery pack. An official notice is given that a battery pack as a device is common knowledge, well known and widely used in the art of electrical connectors. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to mount a battery pack in the Clark's apparatus because battery packs are widely used and needed in electronic equipments for supplying power.

8. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (5014162).

Clark discloses all the features of these claims as described in paragraphs 6-8 above except the electronic device spot welded to the circuit board. An official notice is given that spot welding is common knowledge, well known and widely used in the art of

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electrical connectors. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to mount a battery pack using spot welding because such method of welding is common knowledge, well known, easy to use and widely used in the art of electrical connectors.

Response to Arguments

9. Applicant's arguments filed 9/27/07 have been fully considered but they are not persuasive. Clark teaches the formation of a solder layer when the cavities 21 are filled with a solder paste (see Fig. 2 and Column 3, lines 61-64). Making a plurality of through-holes in each land and solder layer is ordinary skill in the art.

Contact Information

10. Any correspondence to this action may be mailed to:

**Commissioner for Patents
Post Office Box 1450
Alexandria, VA 22313-1450**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrika Prasad whose telephone number is (571) 272-2099.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor can be reached at (571) 272-2800 ext 39. The fax number is 571-273-8300.



Chandrika Prasad
Primary examiner
October 17, 2007